

IN THE CLAIMS:

1. (Currently Amended) A substantially purified nucleic acid molecule that encodes a maize or soybean ~~carbon-assimilation pathway~~ ribulose-bisphosphate carboxylase enzyme or fragment thereof, ~~wherein said maize or soybean carbon-assimilation pathway~~ ~~enzyme is selected from the group consisting of:~~

- (a) ~~ribulose-bisphosphate carboxylase;~~
- (b) ~~phosphoglycerate kinase;~~
- (c) ~~glyceraldehyde 3-phosphate dehydrogenase;~~
- (d) ~~putative glyceraldehyde 3-phosphate dehydrogenase;~~
- (e) ~~triose-phosphate isomerase;~~
- (f) ~~aldolase;~~
- (g) ~~fructose-1,6-bisphosphatase;~~
- (h) ~~transketolase;~~
- (i) ~~putative transketolase;~~
- (j) ~~sedoheptulose-1,7-bisphosphatase;~~
- (k) ~~D-ribulose-5-phosphate-3-epimerase;~~
- (l) ~~ribose-5-phosphate isomerase;~~

~~(m) putative ribose 5-phosphate isomerase;~~

~~(n) ribose 5-phosphate kinase;~~

~~(o) phosphoenolpyruvate carboxylase;~~

~~(p) NADP-dependent malate dehydrogenase;~~

~~(q) aspartate aminotransferase;~~

~~(r) putative aspartate aminotransferase;~~

~~(s) alanine aminotransferase;~~

~~(t) NADP-dependent malic enzyme;~~

~~(u) NAD-dependent malic enzyme;~~

~~(v) PEP carboxykinase;~~

~~(w) putative PEP carboxykinase;~~

~~(x) pyruvate, phosphate dikinase; and~~

~~(y) pyrophosphatase.~~

wherein said nucleic acid molecule comprises the sequence of SEQ ID NO: 5 or
complement thereof.

23. (New) A substantially purified nucleic acid molecule comprising a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
24. (New) A substantially purified nucleic acid molecule consisting of a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
25. (New) A substantially purified nucleic acid molecule comprising a nucleic acid sequence having between 100% and 90% sequence identity with a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
26. (New) The substantially purified nucleic acid molecule of claim 25, wherein said nucleic acid molecule comprises a nucleic acid sequence having between 100% and 95% sequence identity with a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
27. (New) The substantially purified nucleic acid molecule of claim 26, wherein said nucleic acid molecule comprises a nucleic acid sequence having between 100% and 98% sequence identity with a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
28. (New) The substantially purified nucleic acid molecule of claim 27, wherein said nucleic acid molecule comprises a nucleic acid sequence having between 100% and 99% sequence identity with a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.